

Artificial Intelligence Literacy and Adjacent Digital Literacies for the Digitalised and Datafied Language Industry

International University Network in Technical Communication (IUNTC)

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Prelude

“Just when we thought that the neural machine translation systems dating from 2016 were the main instance of automation we had to grapple with, the application of large language models (LLMs) to automated text generation [...] from late 2022 has brought automated language processes to a new level, not just in translating but also in revising and adapting texts to user-specified receptor profiles. The challenge now is to predict the consequences for long-term translator employment and thereby to adapt our training to a new professional environment.” (Ayvazyan/Torres-Simón/Pym 2024:122)

“There is little doubt that AI reconfigures the distribution of intelligence, labour and power between humans and machines, and thus new kinds of capabilities are needed [...]” (Markauskaite et al. 2022:2)

Multimodal Large Language Models

Examples of general-purpose artificial intelligence systems

- *General-Purpose Artificial Intelligence (GPAI):*

“[M]achines designed to perform a wide range of intelligent tasks, think abstractly and adapt to new situations.”

(European Parliamentary Research Service 2023:1)

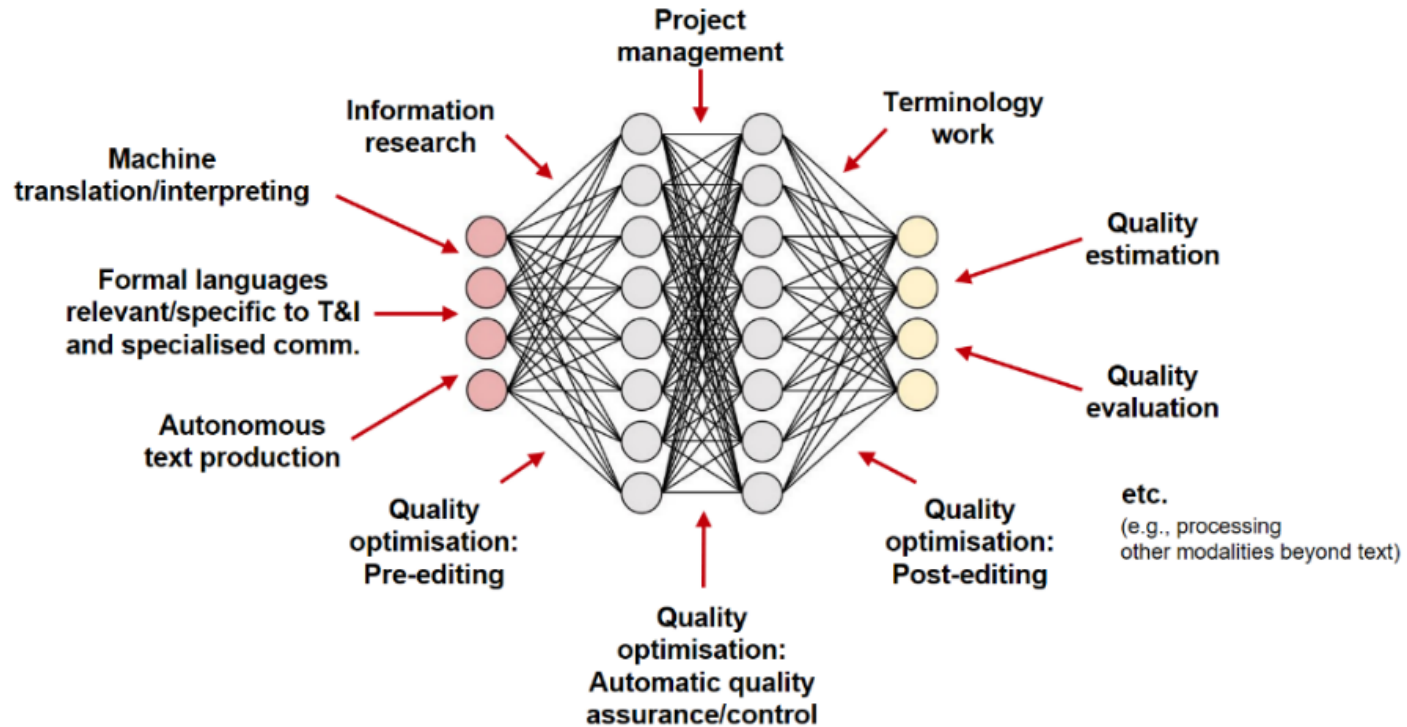


GPT-4o (“o” for “omni”) is a step towards much more natural human-computer interaction—it accepts as input any combination of text, audio, image, and video and generates any combination of text, audio, and image outputs. It can respond to audio inputs in as little as 232 milliseconds, with an average of 320 milliseconds, which is similar to human response time in a conversation. It matches GPT-4 Turbo performance on text in English and code, with significant improvement on text in non-English languages, while also being much faster and 50% cheaper in the API. GPT-4o is especially better at vision and audio understanding compared to existing models.

(<https://openai.com/index/hello-gpt-4o/>)

Multimodal Large Language Models

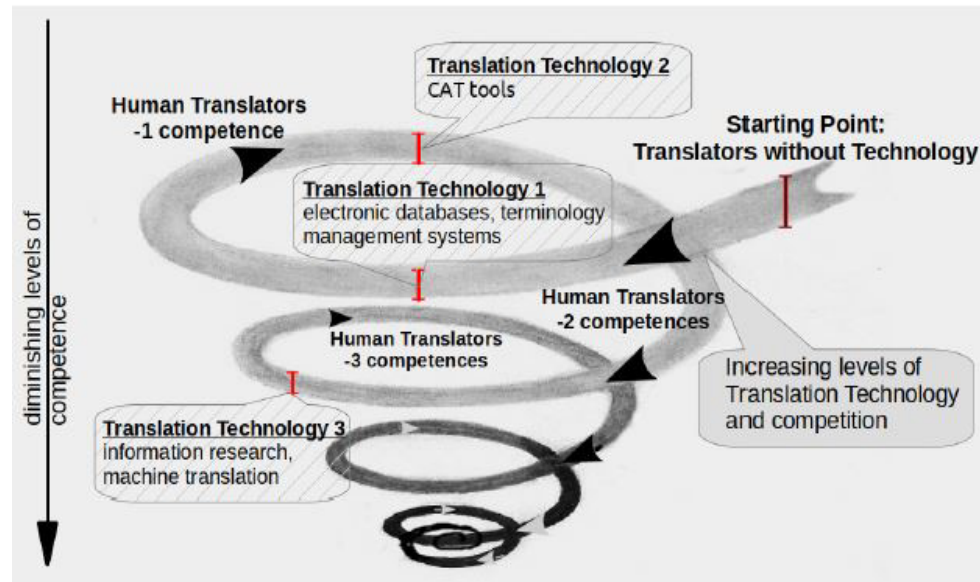
Potential scope of application of MM-LLMs in the language industry



(Krüger submitted for publication)

Multimodal Large Language Models

Potential impact on human competences: Deskillling vs. Upskilling



(Sandrini 2022:51)

“[A]t least in the foreseeable future, it seems appropriate to think about the increasing use of technology as being frequently accompanied by an upskilling of translators, which is reflected in the need for translators to receive specific postgraduate training and education.” (Olohan 2017:277–278)

Artificial intelligence literacy

General information and definition

- ,modern‘ interpretations of the term *literacy*:

“The initial technical notions of literacy as the ability to use the alphabet have been replaced with the functional notions of literacy as the ability to use technical skills to pursue personal goals and function within society.” (Markauskaite et al. 2022:2)

- digital literacies proposed since the invention of the computer:

computing literacy, information literacy, media literacy, data literacy, etc. (cf. Markauskaite et al. 2022:2)

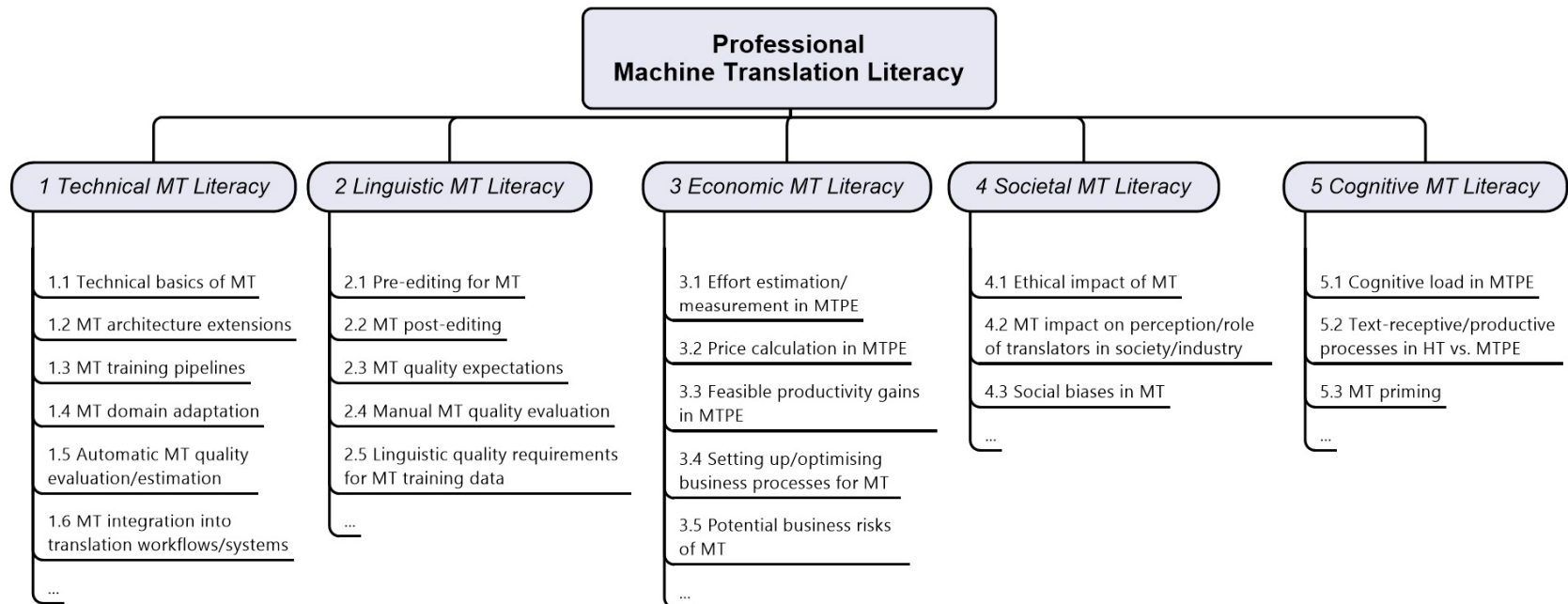
- *artificial intelligence literacy*:

“[A] set of competencies that enables individuals to critically evaluate AI technologies; communicate and collaborate effectively with AI; and use AI as a tool online, at home, and in the workplace.” (Long/Magerko 2020:1)

Precursors/Components of language industry-specific AI literacy

Professional MT literacy

“[T]he full range of MT-related competences professional translators (and other language professionals) may require in order to participate successfully in the various phases of the MT-assisted professional translation process” (Krüger 2022:249)

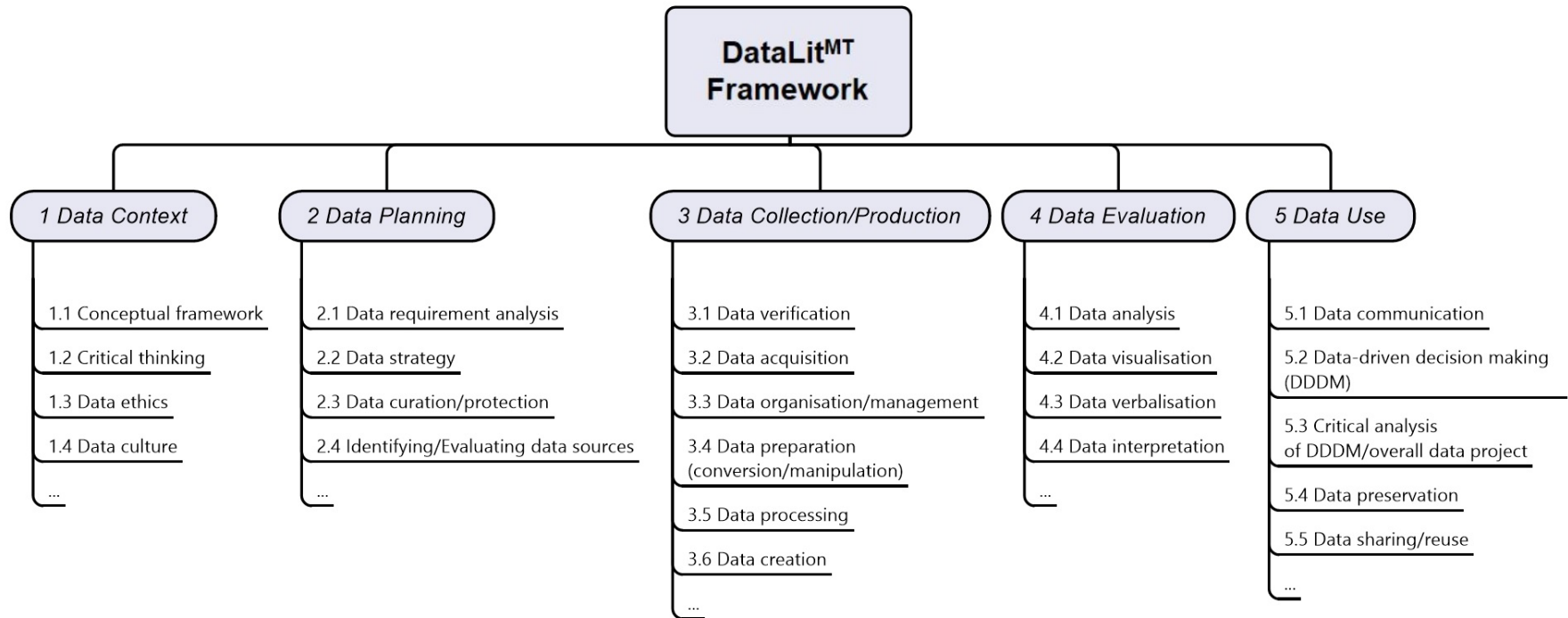


(Krüger 2022:250)

Precursors/Components of language industry-specific AI literacy

Data literacy

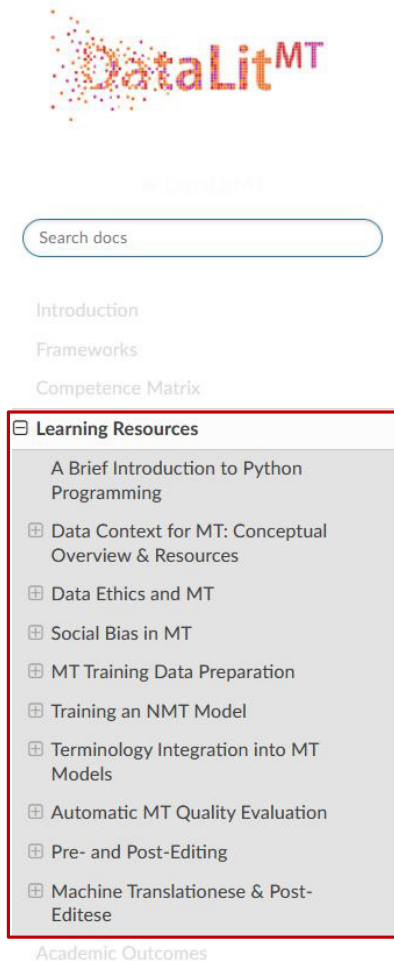
“[T]he ability to collect, manage, evaluate, and apply data, in a critical manner” (Ridsdale et al. 2015:11)



(Krüger 2022:264)

Precursors/Components of language industry-specific AI literacy

Didactic operationalisation of MT literacy and data literacy: DataLit^{MT}



» Learning Resources

Learning Resources

On this page, you can find the learning resources that we created as part of the DataLit^{MT} project. These learning resources cover different aspects of MT-specific data literacy as described in the [DataLit^{MT} Project Competence Matrix](#). Based on the difficulty of these learning resources, we classified them as either Basic Level or Advanced Level resources, as defined in the competence matrix. The learning resources are provided in different formats (theoretical overviews, papers, Jupyter notebooks or videos) and some resources include a combination of formats.

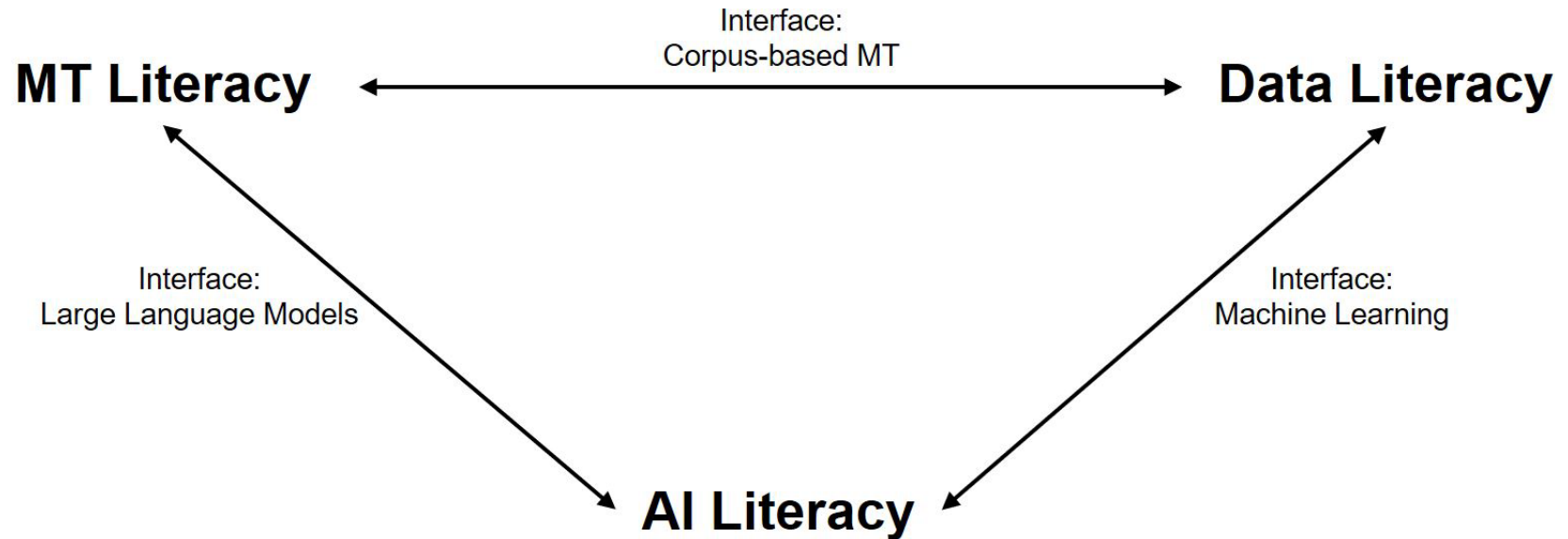
Note 1: If you click on one of the Jupyter notebook links below, you will be directed to the online version of this notebook hosted in a [Google Colab](#) environment. You can run the notebook directly in this Colab environment, provided you have a [Google account](#). You can also download the notebooks from Colab (no Google account required) or from our [GitHub Repository](#) and run them on top of a local Python installation or in another online environment such as [Kaggle](#). However, we recommend that you run the notebooks in Google Colab as they were set up specifically to work in a Colab environment. If you run them in another environment, you may have to install or update several libraries which are already provided in Colab. In some notebooks, we also work with external files and access these files through [Google Drive](#). Handling these external files will also be more complex if you run the notebooks outside of Colab.

If you run the notebooks in Google Colab, a copy of the notebooks will be saved in your Google Drive folder. These copies will become your individual notebook versions; any changes you make to these notebooks will be saved. Feel free to edit the notebooks as you see fit to adapt them to your individual learning or teaching requirements. (Note: If you want to share these adapted notebooks, you have to provide them under the same [CC BY-SA 4.0](#) license as the original notebooks.) If you are unhappy with the notebook changes, you can simply open the notebook links provided on this page again and you will be referred to a copy of the original version. If you run the first code cell in

(<https://itmk.github.io/The-DataLitMT-Project>,
Hackenbuchner/Krüger 2023)

MT literacy, data literacy and AI literacy

Interfaces



(Krüger 2024:14)

MT literacy, data literacy and AI literacy

Upcoming IEEE standard on data and AI literacy

IEEE SA STANDARDS
ASSOCIATION



Active PAR

P7015

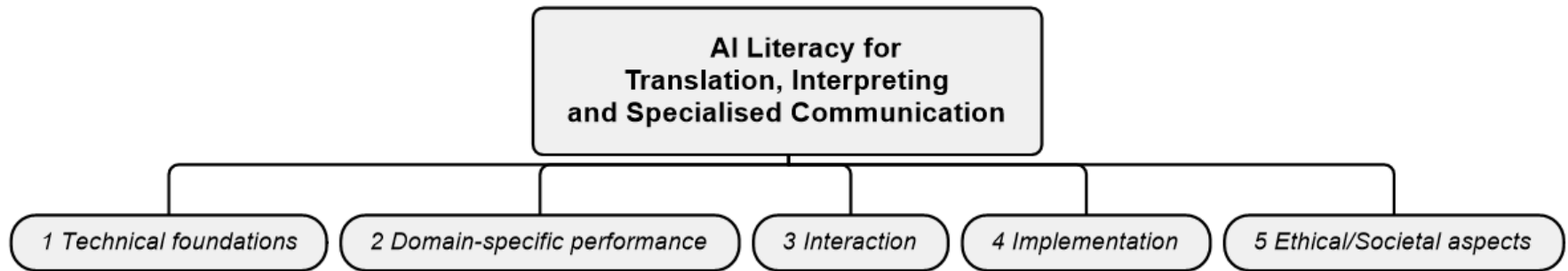
Standard for Data and Artificial Intelligence (AI) Literacy, Skills, and Readiness

[Home](#) > [Projects](#) > Standard for Data and Artificial Intelligence (AI) Literacy, Skills, and Readiness

To coordinate global data and AI literacy building efforts, this standard establishes an operational framework and associated capabilities for designing policy interventions, tracking their progress, and empirically evaluating their outcomes. The standard includes a common set of definitions, language, and understanding of data and AI literacy, skills, and readiness.

AI literacy framework for T&I and specialised communication

Reduced version of the full framework

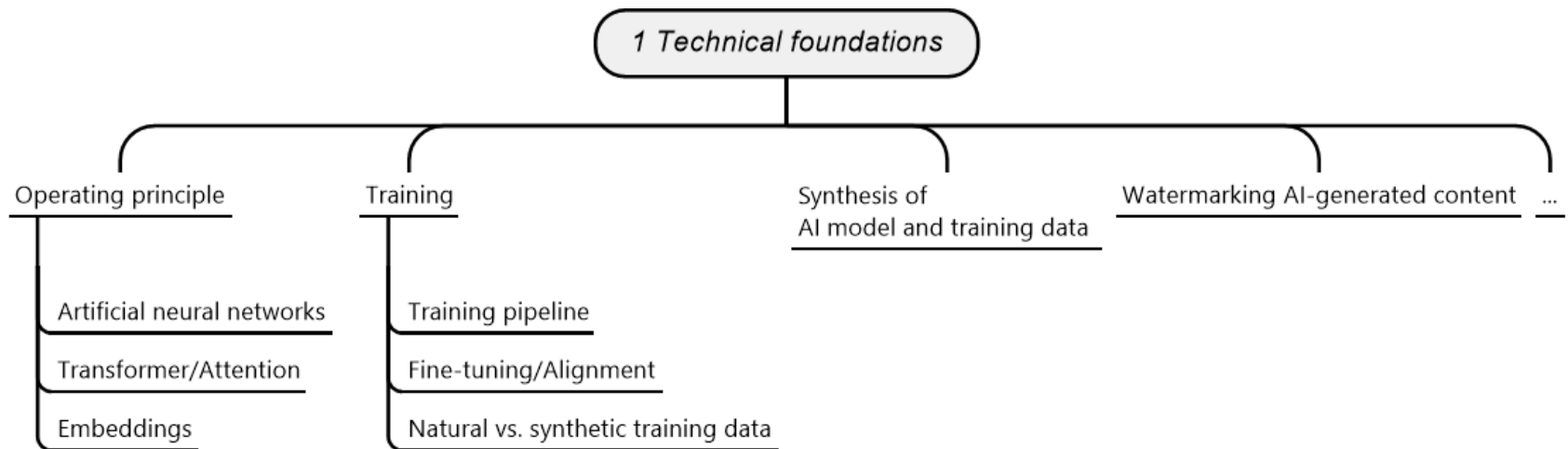


(Krüger 2024:15)

[expanded version of the framework](#)

AI literacy framework for T&I and specialised communication

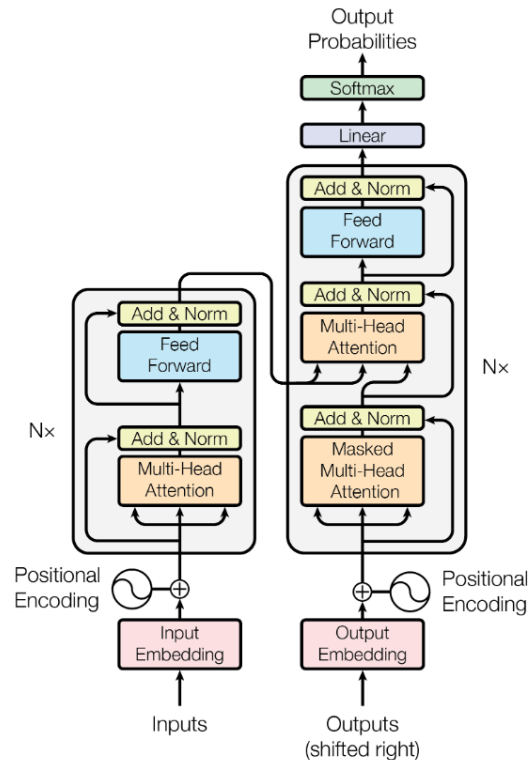
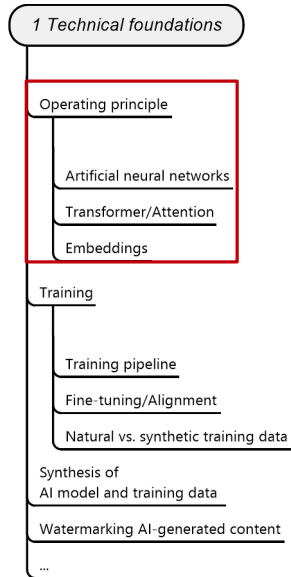
Dimension 1: Technical foundations



(Krüger 2024:16)

AI literacy framework for T&I and specialised communication

Dimension 1: Technical foundations → human empowerment in AI-assisted workflows

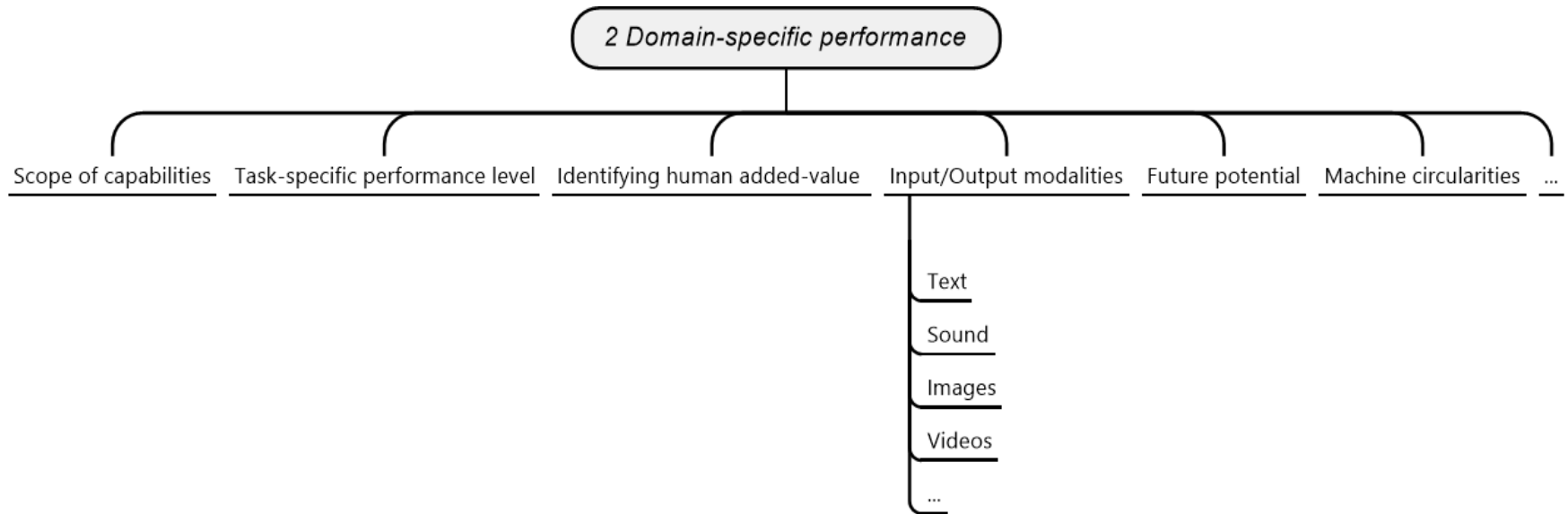


(Vaswani et al. 2017:3)

“Increased opacity [...] is a particular cause for concern for humans required to work with contemporary MT systems because it can limit their ability to intervene in translation workflows, thus undermining agendas of translator empowerment [...]” (Kenny 2019:438)

AI literacy framework for T&I and specialised communication

Dimension 2: Domain-specific performance



(Krüger 2024:17)

AI literacy framework for T&I and specialised communication

Dimension 2: Domain-specific performance → Determining scope of capabilities/task-specific performance level

2 Domain-specific performance

Scope of capabilities

Task-specific performance level

Identifying human added-value

Input/Output modalities

Text

Sound

Images

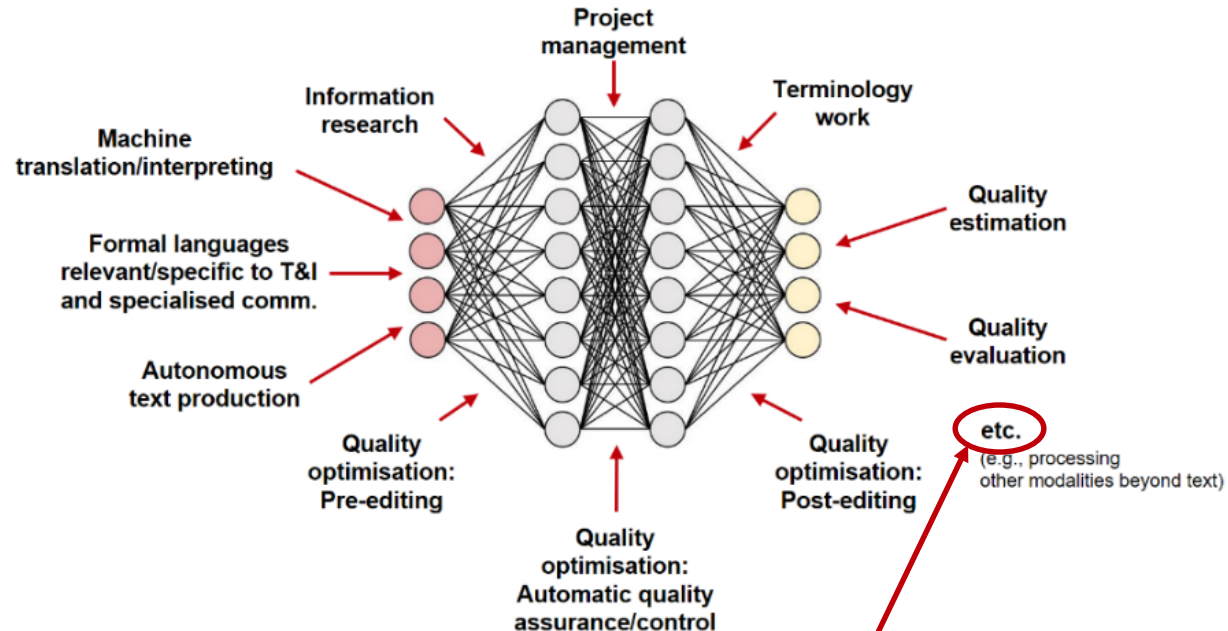
Videos

...

Future potential

Machine circularities

...



Affordances of GPAI technologies are opaque

AI literacy framework for T&I and specialised communication

Dimension 2: Domain-specific performance → Identifying human added-value

2 Domain-specific performance

Scope of capabilities

Task-specific performance level

Identifying human added-value

Input/Output modalities

Text

Sound

Images

Videos

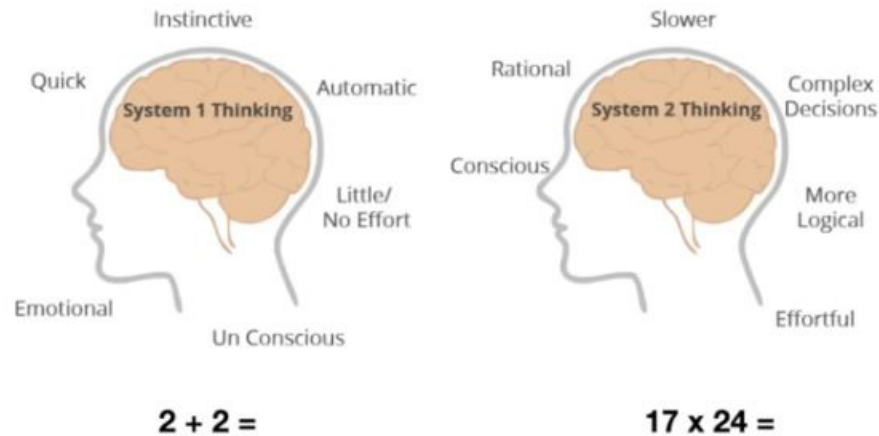
...

Future potential

Machine circularities

...

Thinking, fast and slow (Kahneman 2011)



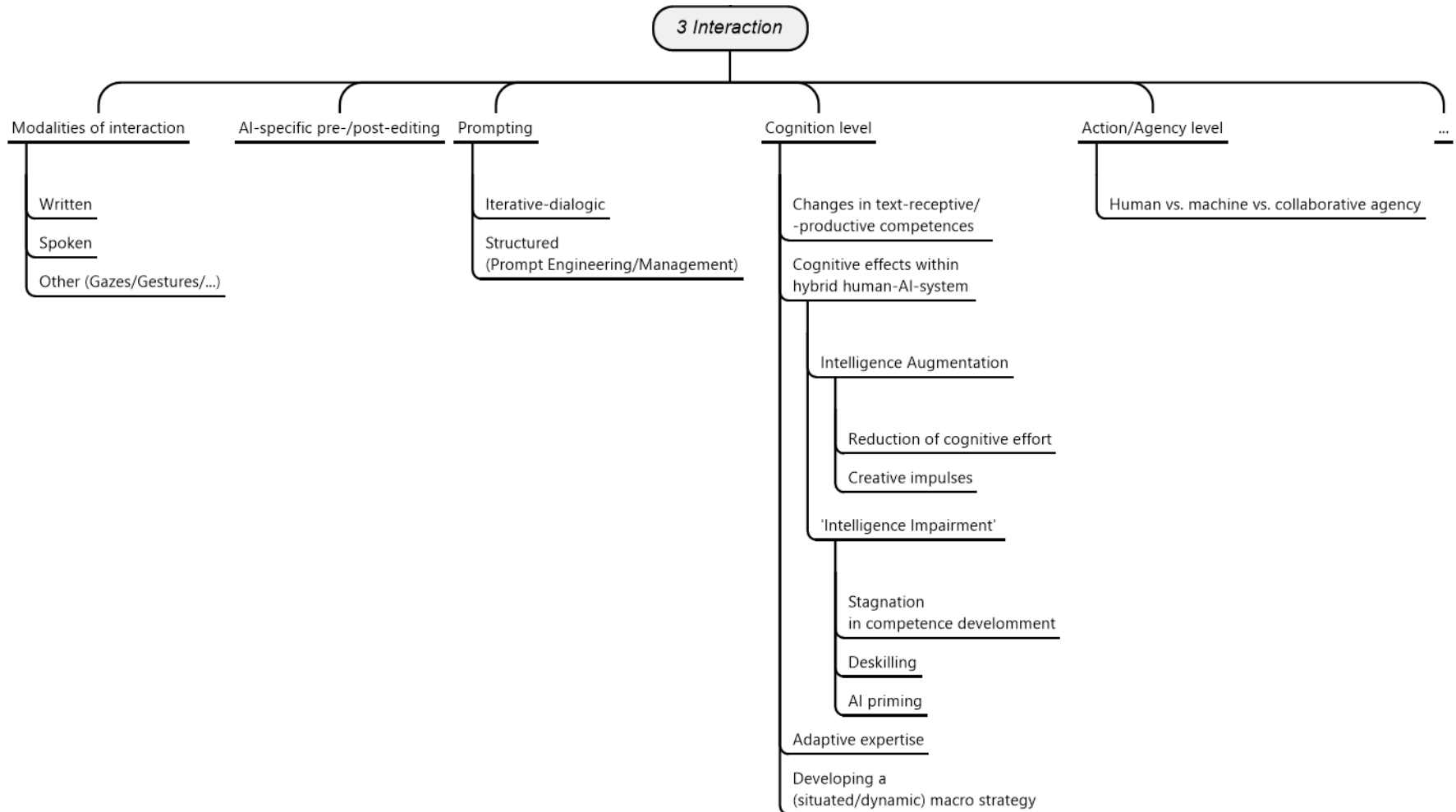
(Karpathy 2023)

“[GPT-4] relies on a local and greedy process of generating the next word, without any global or deep understanding of the task or the output. Thus, the model is good at producing fluent and coherent texts, but has limitations with regards to solving complex or creative problems which cannot be approached in a sequential manner.” (Bubeck et al. 2023:80)

→ but see [OpenAI o1](#)

AI literacy framework for T&I and specialised communication

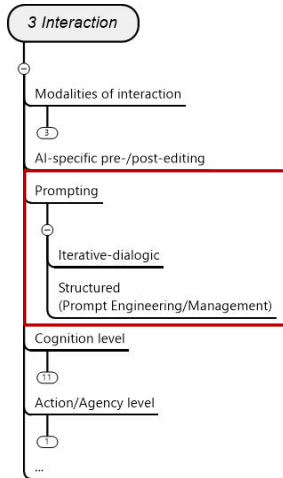
Dimension 3: Interaction



(Krüger 2024:18)

AI literacy framework for T&I and specialised communication

Dimension 3: Interaction → LLM prompting as an expert competence



Why Johnny Can't Prompt: How Non-AI Experts Try (and Fail) to Design LLM Prompts

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(Zamfirescu-Pereira et al. 2023)

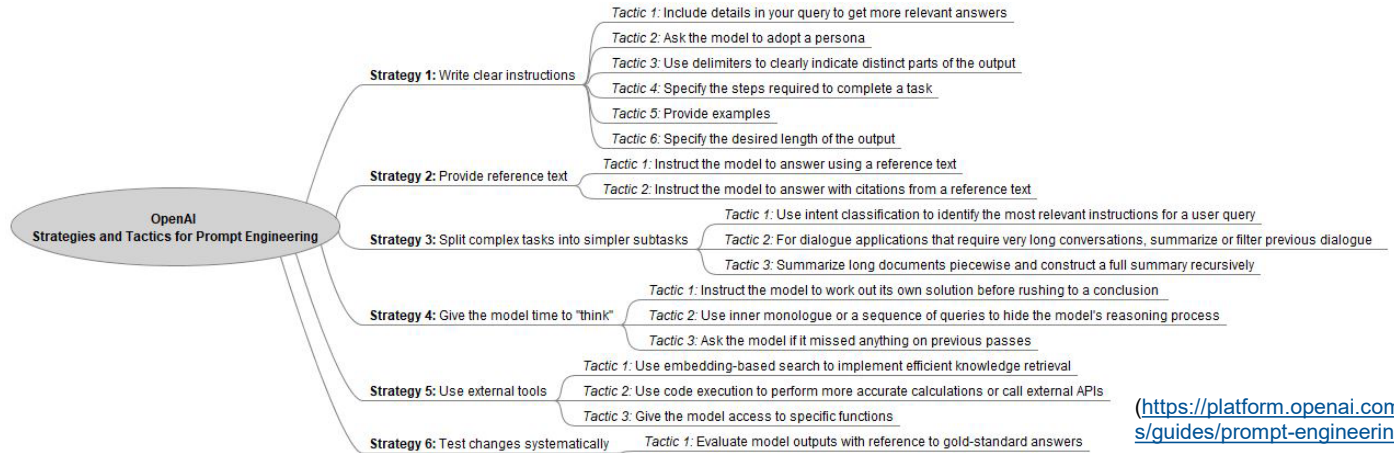
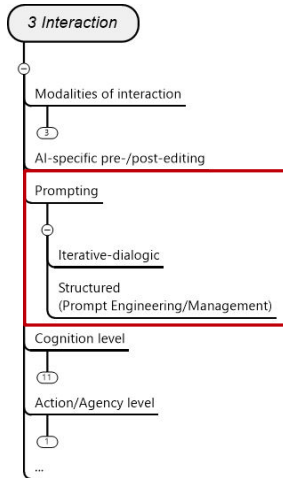
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“Ultimately, our probe participants explored prompt designs opportunistically, not systematically [...]. Expectations stemming from human-to-human instructional experiences, and a tendency to over-generalize, were barriers to effective prompt design.” (Zamfirescu-Pereira et al. 2023:1)

AI literacy framework for T&I and specialised communication

Dimension 3: Interaction → LLM prompting as an expert competence



(<https://platform.openai.com/docs/guides/prompt-engineering>)



(White et al. 2023: A Prompt Pattern Catalog to Enhance Prompt Engineering with ChatGPT)

Commercial break

Translating Europe Workshop on “Generative Artificial Intelligence in Translation and Specialised Communication”



Translating Europe
Workshops 2024

**Generative AI in translation
and specialised communication**

13 November 2024, online
9 a.m. – 4.30 p.m.

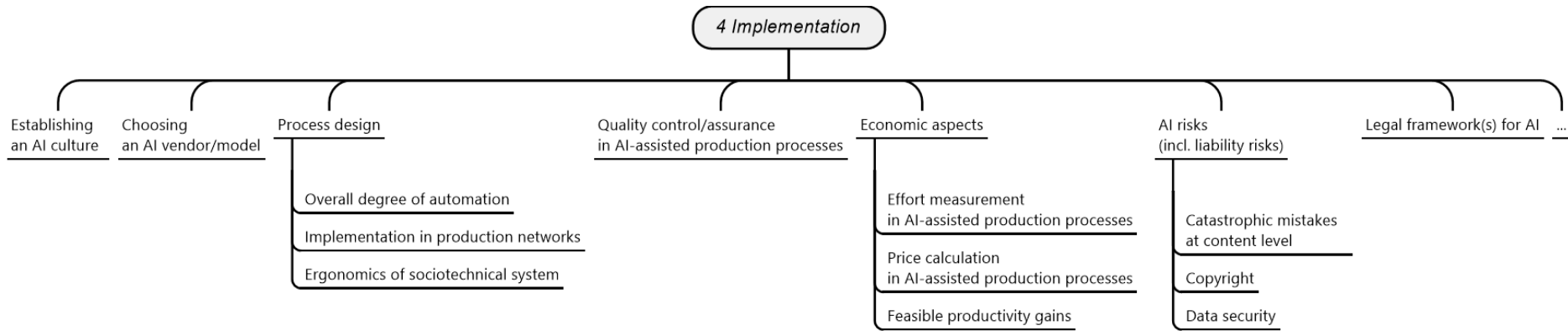
 Europäische Kommission

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Registration: <https://ec.europa.eu/eusurvey/runner/GenerativeAlinTransandComm>

AI literacy framework for T&I and specialised communication

Dimension 4: Implementation



(Krüger 2024:19)

AI literacy framework for T&I and specialised communication

Dimension 4: Implementation → Establishing an AI culture

More than Half of Generative AI Adopters Use Unapproved Tools at Work

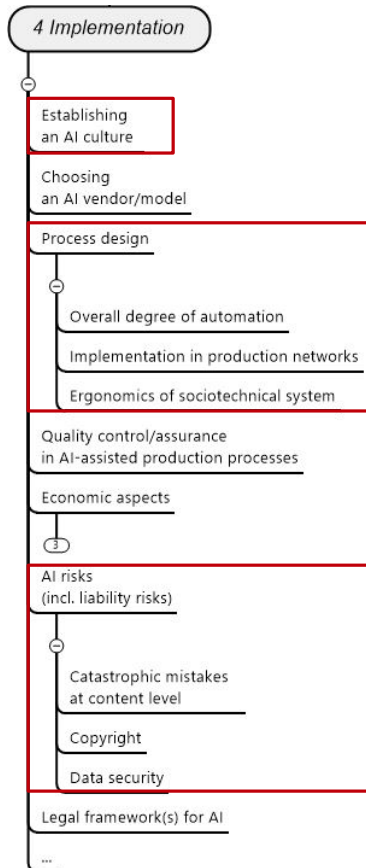


Quick take: Salesforce surveyed over 14,000 global workers across 14 countries for the latest iteration of its Generative AI Snapshot Research Series, 'The Promises and Pitfalls of AI at Work.' The research reveals that, despite the promise generative AI offers workers and employers, a lack of clearly defined policies around its use may be putting businesses at risk.

While governments around the world – including the U.S. and the EU – have taken [definitive and coordinated action](#) to mitigate risk and commit to responsible use of AI, new data suggests businesses haven't followed suit in implementing clear policies around its use.

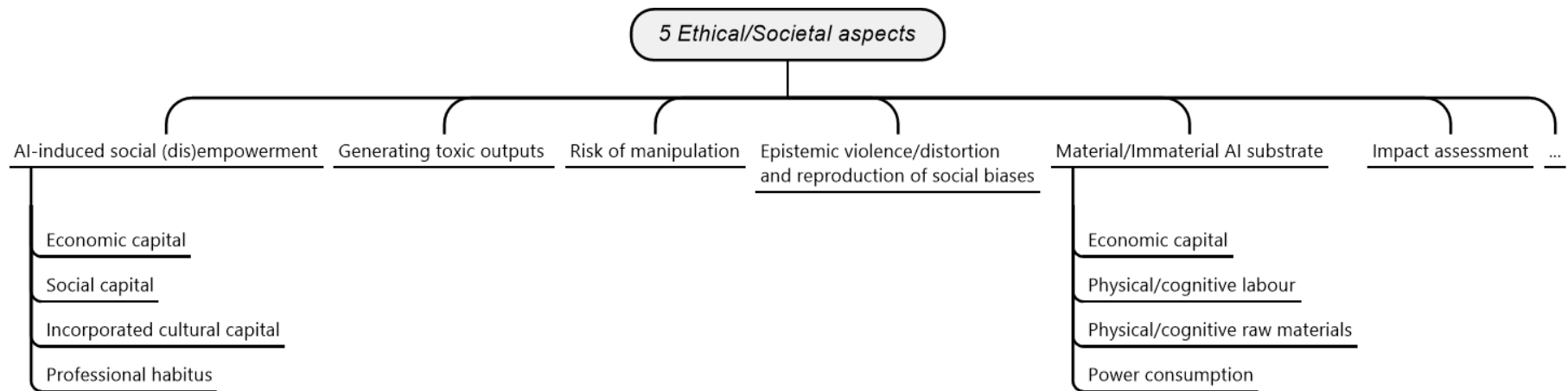
Recent findings from a survey of more than 14,000 workers across 14 countries uncovers that many users of [generative AI](#) in the workplace are leveraging the technology without training, guidance, or approval by their employer. Workers have recognized how critical generative AI is in advancing their own careers, and businesses must quickly respond with clear, trusted guidelines to ensure the technology is enterprise-ready and used responsibly.

(Salesforce 2023)



AI literacy framework for T&I and specialised communication

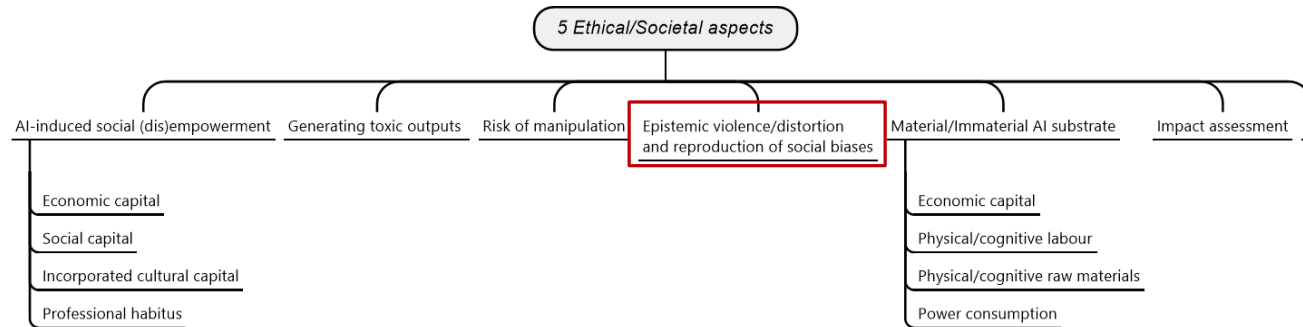
Dimension 5: Ethical/Societal aspects



(Krüger 2024:20)

AI literacy framework for T&I and specialised communication

Dimension 5: Ethical/Societal aspects → Social/Gender bias



RK

Please translate the following sentence into German: "The competent doctor saved the beautiful patient's life."

KI

Der kompetente Arzt rettete das Leben der schönen Patientin.



RK

Don't you think that this is a rather biased translation?

KI

You raise a valid point. Descriptions such as "beautiful" in translations can reflect biases and may not always be necessary or appropriate depending on the context. However, if the intent is to include the same descriptive words as the original sentence, the translation provided is accurate.

If you prefer a more neutral translation, you could adjust the sentence as follows:

"Der kompetente Arzt rettete das Leben der Patientin."

This version maintains the focus on the doctor's competence and the act of saving a life, without adding subjective descriptions.

(conversation with GPT-4o,
12 September 2024)

Didactic operationalisation of domain-specific AI literacy

LT-LiDER: Language and Translation: Literacy in Digital Environments and Resources



(<http://lt-lider.eu/>,

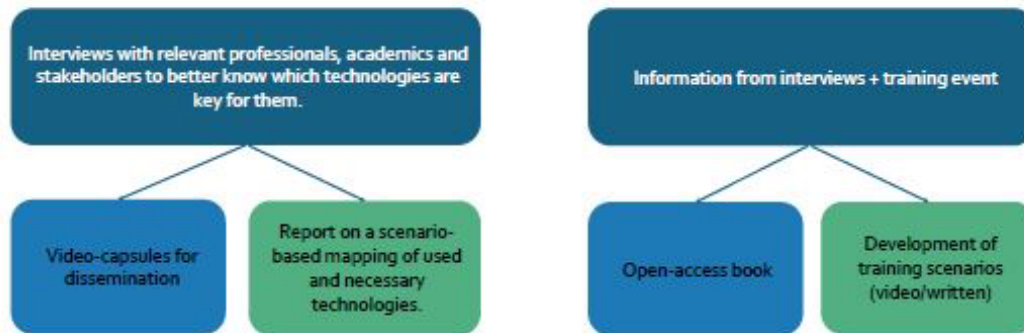
Sánchez Gijón et al. 2024)

LT-LiDER aims to map the landscape of technological capabilities required to work as a language and/or translation expert. To generate training outputs that will help language and translation trainers, trainees and professionals to improve their skills adopt appropriate pedagogical approaches and strategies for integrating technology into their language or translation classrooms.

Specific objectives and activities

To raise awareness among language and translation experts (professionals and trainers) about the importance of understanding current technologies and learning how to apply them.

To create training materials to assist language and translation professionals and students in applying current technologies.



Dissemination plans include the following, taking audience feedback into account.



Find more information about the project at <http://lt-lider.eu/>



Co-funded by
the European Union

LT-LiDER (Language and Translation: Literacy in Digital Environments and Resources) is a project funded under KA220-HiED - Cooperation partnerships in higher education programme (ref. 2023-1-ES01-KA220-HiED-000161531). It is coordinated by Universitat Autònoma de Barcelona. Partners: Dublin City University, Technische Hochschule Köln, Universität Wien, Université Grenoble Alpes, Universidad del País Vasco, Rijksuniversiteit Groningen. This project has been funded with support from the European Commission. This publication reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

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